

## **REMARKS**

Applicants are most appreciative of courtesies extended by Examiner Schnizer during a telephonic interview on May 10, 2006, particularly his willingness to enter and consider this paper.

Reconsideration and withdrawal of the rejections of the application are requested in view of the amendments and remarks presented herein, which place the application into condition for allowance.

### **I. STATUS OF CLAIMS AND FORMAL MATTERS**

Claims 63-81 are pending in this application. Claims 63, 73, 74, 78 and 80 are amended. Support for the added phrase can be found throughout the specification. No new matter is added.

It is submitted that the claims are patentably distinct over the prior art and that these claim are and were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims herein are not made for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather, the amendments are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Furthermore, it is explicitly stated that the amendments should not give rise to any estoppel, as they are not narrowing amendments.

### **II. THE REJECTION UNDER 35 U.S.C. § 112, 1<sup>ST</sup> PARAGRAPH, IS OVERCOME**

Claims 63-81 were rejected under the first paragraph of Section 112 as allegedly lacking adequate written description. The amendment to independent claim 63 and dependent claims 73, 74, 78 and 80 clarifies the intended breadth of the claimed genus, overcoming the rejection. Reconsideration and withdrawal are requested.

### **III. THE REJECTION UNDER 35 U.S.C. § 103 IS OVERCOME**

Claims 63-65 and 68-81 were rejected under Section 103(a) as allegedly being unpatentable over Verma in view of Chang *et al.* The rejection is traversed.

As discussed in the previous Amendment, one of skill in the art would not have been motivated to combine the teachings of Verma and Chang. On page 5 of the Office Action, the Examiner argues that one would be motivated to combine the teachings to make a simpler production system and to make more space for incorporating genes into the limited length of the vector genome. To the contrary, Verma and Chang do not provide motivation to combine their

teachings to (1) to develop a safer system or (2) to make more space in the vector genome. First, there is no a reasonable expectation of success in the combination of the teachings for developing a system that includes non-functional Tat and that is capable of generating a replication defective vector.

Verma teaches HIV-based lentiviral vector systems that include functional tat. Verma does not teach the generation of replication defective lentiviral vectors produced by a vector system comprising non-functional Tat.

Moreover, the HIV replicating mutants of Chang are not replication defective vectors, nor does Chang teach how one would develop a replication defective lentiviral vector production system from one of the HIV Tat(-) mutants.

There is no teaching in either reference which would lead the artisan from one teaching to the other. This observation is underpinned by the state of the art in 1997 (detailed in Dull *et al.*, 1998; copy enclosed with December 9, 2005 Response). Dull teaches that, prior to 1998, a second generation-type lentiviral vector system was the gold standard in the art for producing replication defective virus. This system included the HIV-derived components Tat and Rev. In fact, the ordinary artisan would not have believed that removing functional Tat from the vector system would have resulted in the generation of a replication defective lentivirus-based retroviral vector. Therefore, the ordinary artisan would not have been able (let alone motivated) to extend the teachings of Verma to the teachings of Chang (or vice versa) with a reasonable expectation of success. Nothing in either reference provides the necessary guidance and direction one would require to develop a lentivirus-based retroviral vector production system lacking functional Tat, and capable of producing replication defective virus.

Therefore, even if one of ordinary skill in the art had sufficient motivation to make a safer system by eliminating the Tat gene from the vector system, there is no reasonable expectation that one would be able to use the HIV Tat mutants in a lentivirus-based retroviral vector system for the generation of a replication defective retroviral vector. In addition, one of ordinary skill in the art would not find motivation in removing Tat for more coding capacity. This is because the ordinary artisan would know that the vector genome (which would carry the gene of interest) generally includes the cis-acting viral sequences necessary for reverse transcription and integration and would not include accessory genes such as Tat.

Therefore, a *prima facie* case of obviousness has not been made. Accordingly, reconsideration and withdrawal of the Section 103 rejections are requested.

**CONCLUSION**

Applicants believe that the application is in condition for allowance. The Examiner is invited to contact the undersigned if any minor issues arise that can be resolved over the telephone. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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